

Airport Surface State Event Tracker (ASSET), Phase I

Completed Technology Project (2018 - 2019)



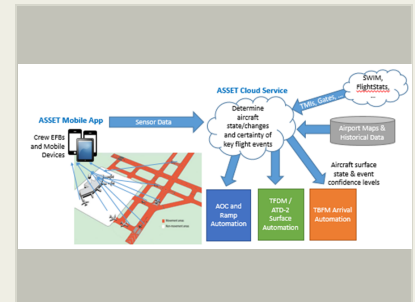
Project Introduction

Integrated Arrival Departure Surface (IADS) traffic management solutions require accurate information about aircraft on the airport surface, from the gate to the runway. Only a small fraction of airports have surface surveillance and in almost every case coverage is limited to the airport's movement area. A solution is needed that can compensate for the shortage of surveillance and is economically feasible to deploy and maintain at any airport. The Airport Surface State Event Tracker (ASSET) provides improved awareness of surface traffic in the absence of surveillance, improving the efficiency of surface and airspace traffic management. ASSET uses sensor data (e.g., location, velocity) from existing mobile devices (e.g., Electronic Flight Bags (EFB), cell phones) to determine aircraft surface state events (e.g., push back from gate, taxiing, takeoff, etc.) and improve departure planning, surface management, and arrival sequencing.

Anticipated Benefits

ASSET improves surface situational awareness for airports not covered by FAA surveillance. ASSET can be extended and enhanced to support NASA research and additional IADS applications. NASA's SMART-NAS Testbed can be used to conduct shadow mode and simulation-based testing of ASSET. ASSET enhancements could allow it to support near-term NASA demonstrations, such as the ATD-2 IADS effort at CLT and the ATD-3 Traffic Flow Management.

Air Traffic Service Providers, Airlines, and Airports – many potential airport surface operations applications. ASSET provides an economic technology solution for tracking aircraft surface movement for traffic flow management support and other critical airport operations in locations where typical surveillance systems are not cost effective solutions.



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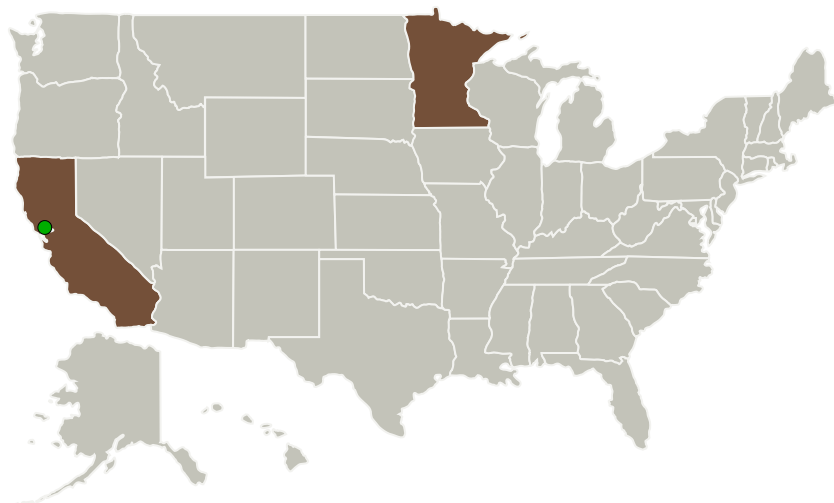
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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Architecture Technology Corporation	Lead Organization	Industry	Eden Prairie, Minnesota
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Minnesota

Project Transitions

▶ **July 2018:** Project Start

✓ **February 2019:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/141264>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Architecture Technology Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

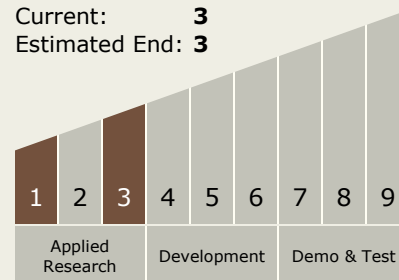
Carlos Torrez

Principal Investigator:

Paul Davis

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**

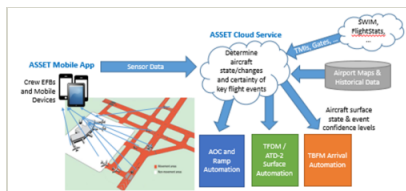


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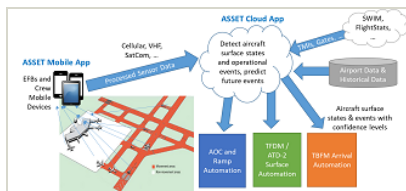


Images



Briefing Chart Image

Airport Surface State Event Tracker (ASSET), Phase I
(<https://techport.nasa.gov/image/131002>)



Final Summary Chart Image

Airport Surface State Event Tracker (ASSET), Phase I
(<https://techport.nasa.gov/image/136832>)

Technology Areas

Primary:

- TX01 Propulsion Systems
 - └ TX01.3 Aero Propulsion
 - └ TX01.3.1 Integrated Systems and Ancillary Technologies

Target Destination

Earth